

the lake in a boat. When we neared the trees it was found that the breeding birds were not cormorants, but darters (*Anhinga melanogaster*). There were no cormorants at all in the lake. We saw more than 16 nests. There were about 25 adult darters and 10 juveniles. I learnt that some of the staff had raided the nests a few days earlier and removed a number of eggs and young ones. One of the nests we saw appeared to have eggs or callow chicks in it. A crow tried to take advantage of our visit to steal the contents of this nest, but 3 adult darters flew to the tree and, to the accompaniment of loud *kle-kle-kle* calls, put the crow to flight.

I was not able to discover whether the darters had nested there in 1954. However, the fact that a colony was well established in 1955 shows that the birds took only a couple of years to find the new nesting sites provided by the reservoir and its trees. Enquiries made of local shikaris proved that darters had never been found there before the lake was formed.

On all subsequent visits I have found darters in the lake. What will happen to the colony when the trees rot away and disappear remains to be seen. If the larger trees that still stand on some of the islands are not cut away, the birds may choose to build in them.

Other water birds, never seen in Palghat before the formation of the lake at Malampuzha, are Openbill Storks, White Ibis, and Little (?) Cormorants. These have not become regular visitors yet.

It may be suggested that employees of the P.W.D. may be given special instructions not to interfere in any way with the birds and animals that appear near the reservoirs of these dams.

I was interested to see that the chicks of the darter (which, at a distance, could easily be mistaken for egrets of some kind owing to their white plumage) rarely submerged even when pursued in the boat. Is diving an accomplishment that comes later?

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21. EGG-LAYING HABITS OF SEA TURTLES DESCRIBED IN THE TAMIL SANGAM LITERATURE

Several occasional references in the ancient Indian texts enable us to visualize not only the ancient Indian fauna and our knowledge concerning them, as shown by Hora (1935, 1951, and 1953), Jayaram (1950), and Rao (1957), but also indicate to what an extent our ancients showed an interest in natural history.

In the Tamil Sangam Literature (circa 4th century A.D.), a short poem written by the poetess Kumizhi Gnāzhalār Nappasalaiyār in *Aghanānūru* (Stanza 160: lines 3-8) gives a brief but remarkably accurate account of the breeding habits of the Indian sea turtles. The accuracy of her observations is rivalled only by the recent similar observations on the Indian sea turtles by Mawson (1921), Cameron (1923), and Deraniyagala (1930):

THE POEM

'*Adumbukodi sidhaiya vāng̃hi kodunkazhi
Kuypai venmanal pakkam sēr̃thi
Niraitchool yāmai maraithēnru puthaitha
Kōttuvattu vuvuvin pulavunārum muttai
Pārpida nāgum alavai pakuvāi
Kanavan ōmbum*'

TRANSLATION

The laying turtle collects and brings a bundle of *adumbu* creepers,
Keeps them beside the heap of white sand to conceal (lines 3-5)
Egg, white as elephant tusks and round as well as foul smelling.
(line 6)

With open mouth, the male awaits the hatching of the young ones.
(lines 7-8)

Nappasalaiyār, while describing the scene of a sea-shore at night, records how a turtle walks across the beach beyond the tidal zone, collects a few creepers of *Ipomaea biloba* (*adumbu kodi*), and camouflages the eggs concealed in sand. Mawson (1921) observed *Chelonia mydas* similarly covering the nest with some weeds. No one else has recorded this habit in Indian turtles excepting Nappasalaiyār and she is even more specific and probably correct in noting the weeds to be of *adumbu kodi* which, as identified by Lourduwamy (1953), is *Ipomaea biloba*, a common weed on the Indian sea-coast.

The various other details concerning the shape, colour, and smell of the turtle eggs as described by her are correct, but the last point that the male keeps waiting (guarding ?) till the hatching of the young ones is not, as far as I know, either recorded or noticed in sea turtles. Nor is it practicable for a male turtle to keep so long exposed to the dangers on the beach. Nevertheless, it may be a point worth putting to observation.

This contribution of Nappasalaiyār to ancient Indian natural history is of interest because the various details and the sequence of events

during the rather elaborate process of the egg laying of sea turtles, described by her, agree closely with our present knowledge on the subject and, especially in view of the fact that our earliest accurate but short account of the sea turtle (Loggerhead) breeding, mentioned in the Old John Speed Atlas, dates back only to 1622. The above description of Nappasalaiyār (circa 4th century A.D.) is clear evidence not only of the keen interest that our ancients evinced in natural history but also of their remarkable powers of accurate observation and description.

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REFERENCES

- Cameron, T. H. (1923): *JBNHS* 29 : 299-300.
 Deraniyagala, P. E. P. (1930): *Ceylon J. Sci. Sect. B*, 16 : 43-88.
 Hora, S. L. (1935): *Journ. As. Soc. Bengal. Science I* : 1-7.
 — (1951): *Arch. Inter. D' Hist. Des. Sci.* 15 : 405-412.
 Hora, S. L. (1953): *Birla Vidya Vihar Magazine* 1-6.
 Jayaram, K. C. (1950): *J. Zool. Soc. Ind.* 2 : 34-38.
 Lourduswamy, P. (1953): *Tamil culture*. II (1) : 81.
 Mawson, N. (1921): *JBNHS* 27:956-957
 Rao, H. S. (1957): *JBNHS* 54: 251-280

22. ON THE ABNORMAL TAIL OF A GECKO

It is common knowledge that geckos can snap off the tail at will and regenerate new ones. In most cases this new tail appears as a continuation of the original one and is exactly similar to the lost one in most of the important characters. Hora (1926, *Rec. Ind. Mus.* 28: 193) recorded a specimen of *Hemidactylus brooki* Gray with a triradiate tail. The tail was composed of a normal median limb and two perfectly symmetrical short limbs starting from the base of the former. The following note is based on a specimen of *Hemidactylus brooki* caught from the Marine Biological Laboratory, Trivandrum.

The major part of the tail is normal, clearly showing the dorsal scutes and the ventral plates, but the distal one-fifth is clearly forked. The fork is asymmetrical, the left limb being slightly longer and more slender than the right. The left limb possesses the dorsal scutes and the ventral plates characteristic of the species, but both scutes and plates are absent on the right limb. The external characters thus clearly indicate that the left limb is the normal original tail and the shorter right limb an abnormal development. The growth of the accessory limb slightly displaced the original tail, producing a dichotomous appearance.